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RANGE INVENTORY AND STATUS REPORT
FLATHEAD INDIAN RESERVATION
MONTANA

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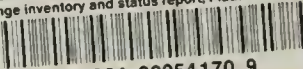
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RANGE INVENTORY AND STATUS REPORT
FLATHEAD INDIAN RESERVATION
MONTANA

SUBMITTED: APRIL 8, 1977

COMPILED BY:

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PURPOSE :

THIS INVENTORY OF THE GRAZING RESOURCE OF THE FLATHEAD INDIAN RESERVATION IS TO AQUAINT THE TRIBES WITH THE CONDITION OF THE RESOURCE AND ITS USERS, TO SHOW WHAT IS BEING DONE ON THE RANGE AND GRAZING UNITS AND TO OFFER SUGGESTIONS AS TO HOW PRODUCTION AND INCOME CAN BE IMPROVED WITHOUT FURTHER DEPLETION OF EITHER THE SOIL OR THE VEGETATION.

The Tribal range lands on the Flathead Indian Reservation have had a history of inadequate development, trespass and over grazing.

Many acres of Tribal range land along the Flathead River have had large bands of sheep grazing on them with little or no management in the 1920's and 1930's. Much of the better land had been plowed and crops raised by early settlers and homesteaders in the area. These lands were not seeded back to grass with the result of weeds, cheatgrass and bluegrass invading the areas. Some of the better springs were developed, but many were not improved or maintained.

Livestock production is foremost in nearly all agricultural enterprises on the Flathead Indian Reservation. The smaller units combine grain and cash crops with livestock, but the majority of the units west of the Flathead River are primarily cattle ranches. Cattle numbers per operation vary considerably. Twenty seven Indian livestock owners having range units have less than 50 head, 40 owners have 51 to 150 head and 12 owners have over 150 head.

Ninety two percent of the range units are permitted to Indian livestock owners. Some of the smaller units have not been requested for allocation and have been bid by local non-Indian stockmen.

The lands designated in range units consist of open grazing, open timber and parks and heavily timbered areas. The highest and best use of the open forest and parks is for livestock grazing and timber production. The highest and best use of the heavily timbered areas within grazing units is for timber production. In many of these units we have to consider a home for wildlife and keep the watershed in a healthy condition. In many of the more heavily timbered areas grazing probably should be eliminated and the vegetation left for wildlife and the watershed.

The Flathead Reservation can be grouped into the following three physiographic areas:

1. The Mission Mountains on the east and the Cabinet Mountains on the west and south form forest covered ramparts for the valleys.
2. The area between the Mission Range and the Flathead River and the Jocko Valley are nearly level to rolling in topography.
3. The area between the Flathead and the Cabinet Range is mostly rolling with a lesser area of arable land.

Elevation varies from about 2,500 feet along the lower Flathead River to over 10,000 feet in the surrounding mountains. Most of the valley is about 3,000 feet in elevation. Annual precipitation also varies considerably from about 10 inches at Lone Pine to over 40 inches at the higher elevations. The east side of the valley receives an average of about 15 inches per year. The climate is under the continental influences and produces warm summers, cold winters and unreliable and low precipitation.

The lands in the lower Flathead Valley were formed primarily by glacial action and modified by drained lakes, wind action, and to a lesser extent, by stream deposition. This valley area is separated into the larger Mission Valley and smaller Jocko, Little Bitterroot and Camas Valleys.

Soils developed from the glacial materials are generally heavy textured with restricted permeability in the sub soils. The soils originating from wind actions are generally coarse textured, loose, and of low moisture-retaining capacity. The soils formed from lake beds have the best texture and permeability but some are saline or alkaline. Variations are from dark colored soils developed under higher rainfall and grassland vegetation to very light colored soils around the Lone Pine area. The soils on lands devoted to grazing are frequently gravelly or rocky or the topography is too dissected or too steep for farming.

Native range shows evidence of prolonged heavy use. The climax vegetation of blue bunch wheatgrass, fescue and associated bunch grasses has been invaded by cheatgrass and herbaceous and shrubby perennials. This use history has greatly reduced the forage production, and even under intensive management, range improvement is slow and difficult on this type of range.

Types of Range Units

There are three broad types of range units on the Flathead Indian Reservation: 1) timbered mountain units, 2) open upland units, and 3) lowland grazing units.

Timbered Mountain Grazing - Most of the grazing units are in this category. These units are at the high elevations where timber production is the primary objective and grazing of livestock is compatible with this objective. The units are best adapted for summer grazing. At the higher elevations, the season of use is about three months but on the lower elevations and in the more open forest, the season of use is comparable with the adjacent upland range (typically six months.). Turn out dates on all timbered units should not be before June 1 of each year.

Forage production varies widely, depending on the type and age of the timbered stand, the topography, and accessibility. Open parks and meadows have a forage production of about 2.0 acres per Animal Unit Month, hereafter referred to as A.U.M., whereas steep or heavily timbered areas will produce no grazing. Present stocking rates on these units vary from four acres per A.U.M. to nearly 80 acres per A.U.M.. Forage is primarily bluegrass, clover, Idaho fescue, pinegrass, sedges and some bunchgrasses. An Animal Unit Month (A.U.M.) is amount of forage required by an animal unit for one month.

Open Upland Units - These units are mostly located adjacent to the Flathead River and in the foothills of the mountains. Season of use is usually six months. Present vegetation is cheatgrass with residual stands of bunch grasses. The decline of the climax vegetation has brought an increase in sagebrush, fringed sagewart and other shrubs and an invasion of undesirable species such as red three awn, broom snakeweed, gumweed, goatweed, leafy spurge, dalmation toadflax, and other unpalatable weeds.

A range improvement program financed from grazing fees initiated in these units has promise of benefits to the land and to the users. Range seeding, stockwater development, cross fencing, and deferment practices can benefit the range only when the permittees and stock associations want to do something to improve the range.

Lowland Grazing Units - These units are located in the Mission Valley and are mostly adjacent to irrigation storage facilities. They include wet meadow and sub-irrigated grazing and differ from the upland grazing units mainly in greater forage production, excellent stockwater, and their proximity to a larger number of operators. Present stocking rates are quite good but could be improved by three or four hundred percent by better grass species, and in some cases, the use of an irrigation system.

Each grazing unit is different. The same management practices may apply to all of them but the way they are applied differs from unit to unit. Also, management practices generally should be applied as a "package". Cross fences are of no value unless stockwater is developed. Putting in a spring development just to give a cow a drink does no good. If by developing this spring, more forage is made available and thereby the pressure on previously overgrazed areas is reduced, then it is of value. All of the practices

applied and money spent are wasted unless grazing management takes place. This means the proper number of livestock for the unit, moving the herd periodically to rotate the use, adjusting the turn out time to let the grass get growing before subjecting it to grazing, and any other applicable measures are the mark of any successful operation.

A grazing plan has been developed for many units on the Reservation. These plans consist of an inventory of soils and vegetation or what there is to work with. There is also a "package" of practices designed to fit the needs of that particular unit. These plans are for the use of the operators for they and they alone can make them work. To apply these plans takes effort and money and a dedication to follow through year after year until the range improves. Even then, continued maintenance is required.

Examples of these management plans are included. Other plans for other units are on file in the Land Services Department of the Bureau of Indian Affairs in Roman.

RU 27 - Kicking Horse Reservoir

Acres: 2,535

Rent: \$2,250 Annually

Season of Use: May 1 to September 30

Stocking Rate: 360 Head

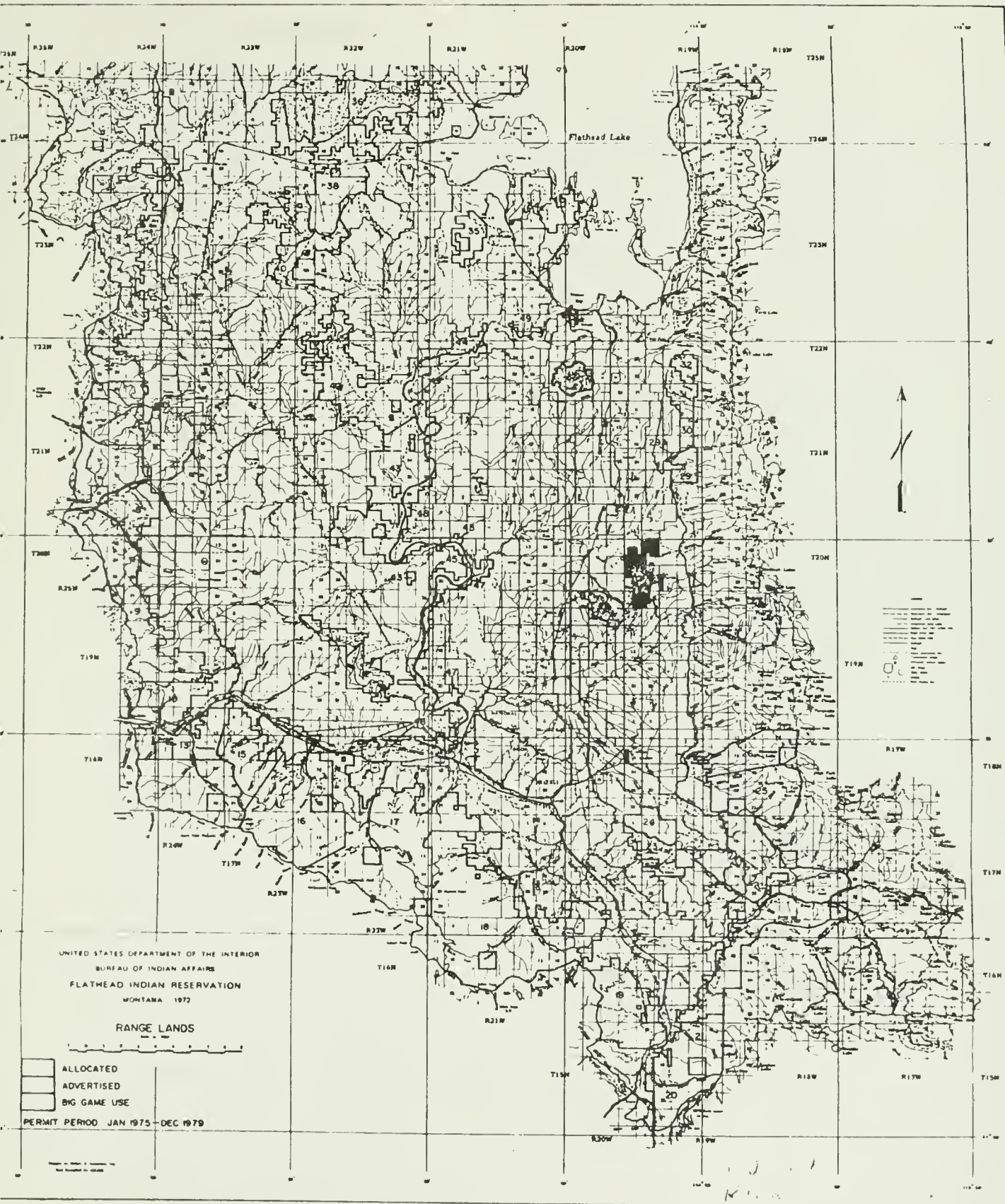
Permittee: Post Creek Indian Stock Association

This grazing unit is located at Kicking Horse Reservoir west of the Job Corps Training Center. This unit shows many signs of being over-grazed. Very few native grasses remain in the unit. The native grasses have been replaced by bluegrass, timothy, orchard grass and many forbs and weeds. This area is a natural waterfowl habitat. There are nearly 200 pot holes that vary in depth from several inches to four to five feet. Under the present management system there is very little duck nesting and no habitat for pheasants.

It is felt that this unit cannot support 360 head for a five-month season and provide any habitat for wildlife. The carrying capacity should be reduced by at least 100 head and rotation system be used on the pastures. The turn out date for this unit should be changed to no earlier than June 1. Proper management of this unit could be possible with no additional fences or costs to the permittees.

This unit also has a potential for seeded irrigated pastures with intensive management. The water source is available and the soils would grow excellent tame pastures.

Plans are available in the Range Office of the Bureau of Indian Affairs in Ronan for a grazing system and a waterfowl plan.



RU 28 - Nine Pipe Reservoir

Acres: 270.30

Rent: \$112.50

Grazing Season: June 1 to September 15

Stocking Rate: 30 head

Permittee: Post Creek Indian Stock Association

A study of this unit was made in 1970 by the Bureau of Indian Affairs, the Soil Conservation Service and the Fish and Wildlife Service as to the carrying capacity of this unit with consideration of the waterfowl that this unit was created for.

There are four different pastures in this unit that will be rotated. Three of these pastures will be rested each year and one grazed. These pastures have been checked each year, and we are finding native grasses coming back and replacing much of the bluegrass. It is felt that 90 A.U.M. grazing rate on these pastures is compatible to the wildlife and will improve the pasture over the years. However, the pasture that is grazed each year is grazed hard, but with this plan, it will have three years of rest to maintain its vigor.

The present plan is subject to change, with one-year's notice to the users, if studies indicate the plan to be adversely affecting wildlife. The cooperation from the Post Creek Indian Stock Association has been very good with this type of management plan.

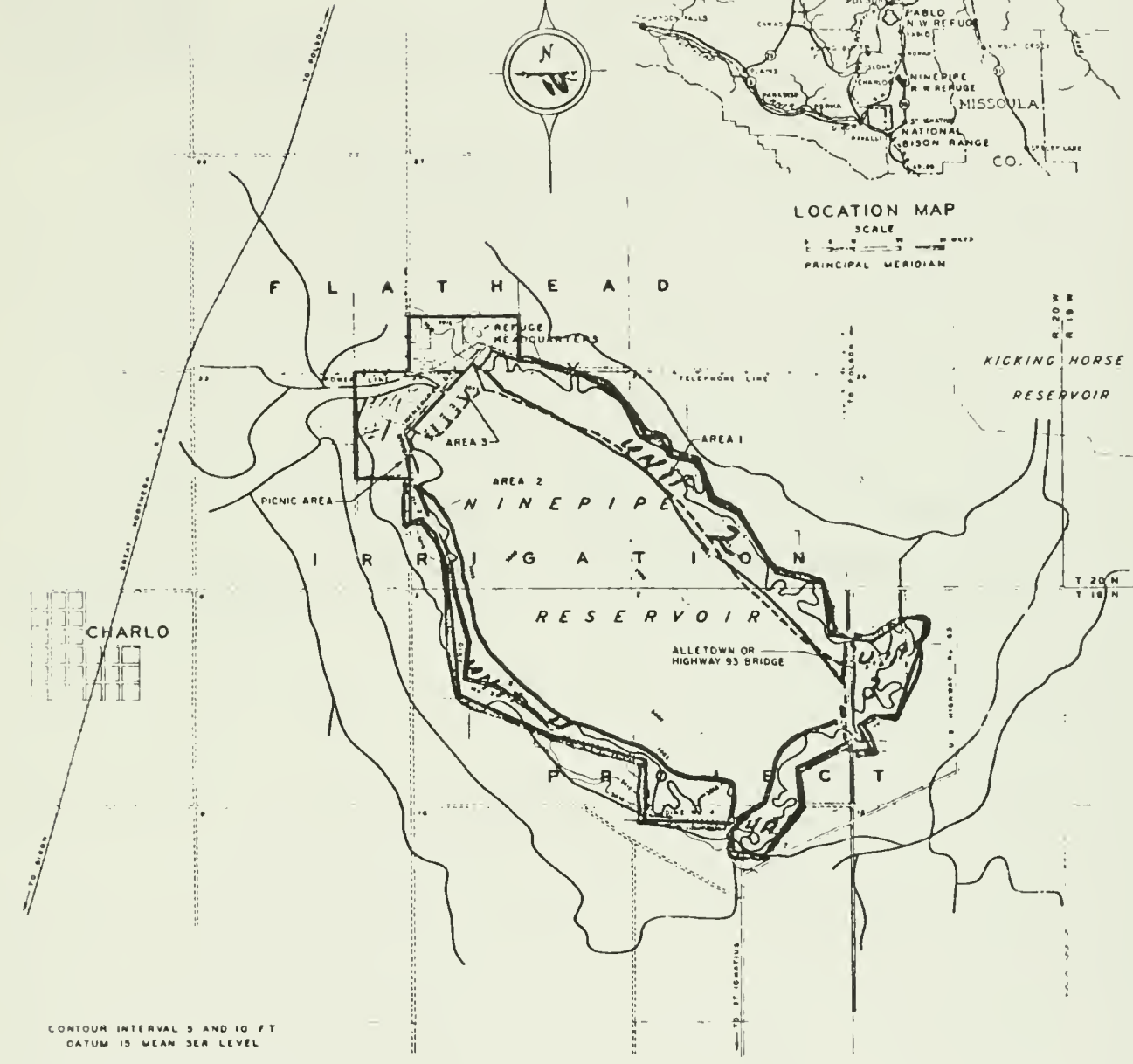
The U.S. Fish and Wildlife Service has requested nonuse of the following land: S $\frac{1}{2}$ SW $\frac{1}{4}$ of Section 27 - T20N R20W located on the north side of the highway at Refuge sub-station. This will not be used for two years and then evaluated for wildlife nesting area.

The U.S. Fish and Wildlife Service has management of this unit.



LOCATION MAP

SCALE
0 1 2 3 4 5 6 7 8 9 10 MILES
PRINCIPAL MERIDIAN



CONTOUR INTERVAL 5 AND 10 FT
DATUM IS MEAN SEA LEVEL

MAXIMUM RESERVOIR FLOW LINE EL 3010 FT
REFUGE AREA 2062 ACRES

LEGEND

- REFUGE BOUNDARY —————
- FENCE LINES - - - - -
- PRIMARY ROADS ————
- SECONDARY ROADS - - - - -
- TRAILS - - - - -
- CANALS & DITCHES ————
- FISHING AREA BOUNDARY - - - - -
- ENTRANCE X

Unit #1	Unit #2	Unit #3 & 4A	Unit #4
1975		90*	
1976			90
1977	90		
1978	90		

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

GENERAL MAP

NINEPIPE
NATIONAL WILDLIFE REFUGE
LAKE COUNTY
MONTANA

SCALE

WASHINGTON, D.C. JANUARY 1938
REVISED JULY 1939 MAY 1961 DEC 1963

RU 28
Nine Pipe Reservoir

*Livestock will be run in Unit 4A from June 1 until July 15, and in Unit 3 from July 15 to September 15.

RU 33 - Pablo Reservoir

Acres: 1,500

Rent: \$500,00

Stocking Rate: 400 A.V.M.'s

Grazing Season: May 20 to September 20

Permittee: Frank Webster

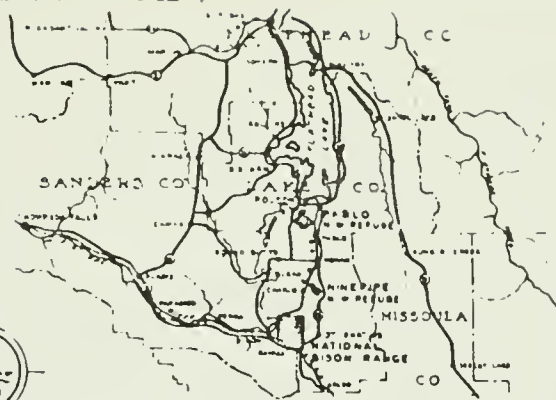
The present grazing program will be continued on an annual basis until data is available to show need for a change to benefit wildlife. At the present this unit will have two pastures and will alternate early summer grazing so grasses have a chance to seed and improve vigor.

This pasture at present is mostly bluegrass and shows evidence with this type of management more native grasses will come in.

Cooperation from Mr. Webster has been very good for the management of this unit. The U.S. Fish and Wildlife Service has management responsibility of this unit.

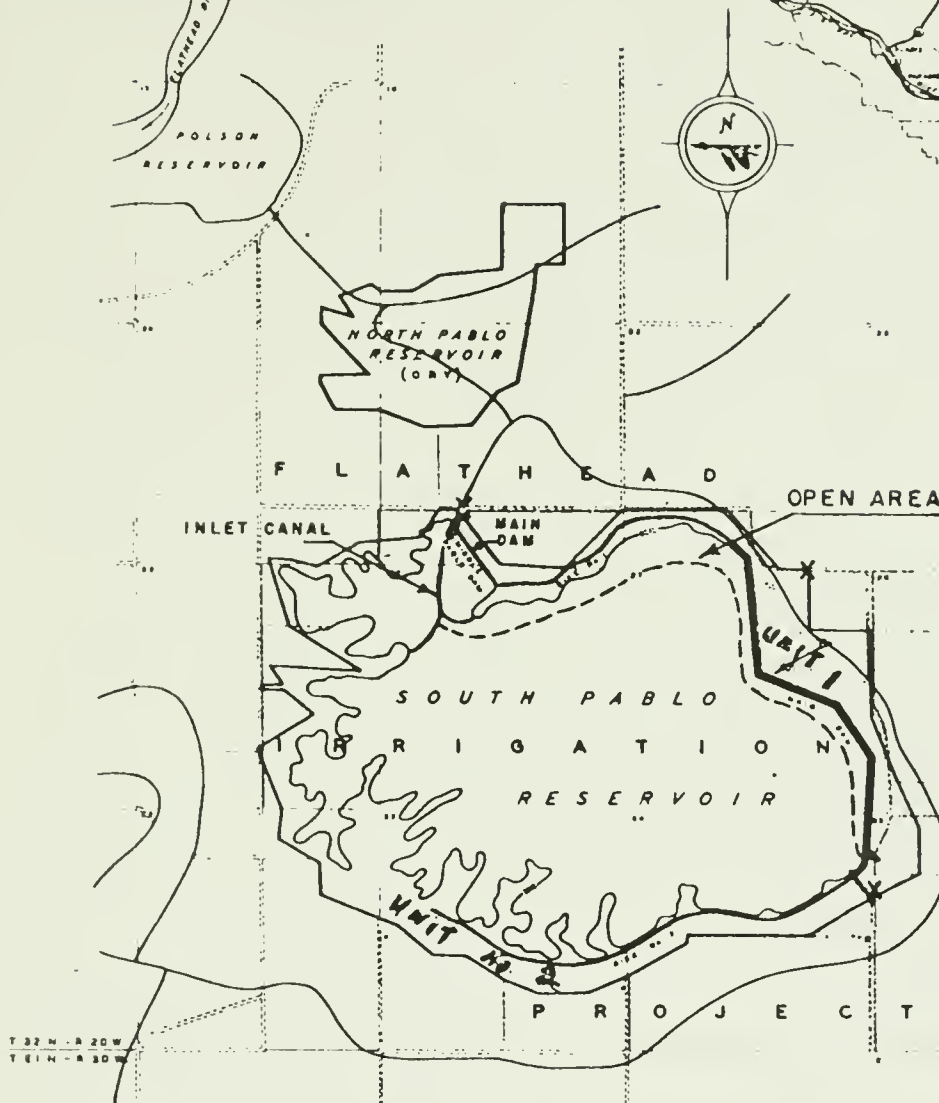
Grazing Schedule

Unit 1	Unit 2
1975 250AUM's	
1976 250AUM's	250AUM's
1977 250AUM's	
1978 250AUM's	250AUM's
1979 250AUM's	



LOCATION MAP

SCALE
0 10 MILES
PRINCIPAL MERIDIAN



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

GENERAL MAP

PABLO
NATIONAL WILDLIFE REFUGE
LAKE COUNTY

MONTANA

SCALE

0 10 MILES

WASHINGTON, D.C., JANUARY 1953

REVISED APRIL 1983

LEGEND

REFUGE BOUNDARY	—————
FENCE LINES	- - - - -
PRIMARY ROADS	=====
SECONDARY ROADS	=====
TRAILS
CANALS & DITCHES	- - - - -
ENTRANCE	X
FISHING AREA	=====
BOUNDARY	=====

PABLO

RU 33
Pablo Reservoir

RU 42 and 43

Acres: 25,928

Rent: \$6,573 Annually

Permittees: Polson Indian Stock Association
Mission Indian Stock Association

Range Units 42 and 43 are located on the west side of the Flathead River with the east boundary in the river and the west boundary in the Garson Gulch area and the Little Bitterroot area. These two units are very similar in that they have large areas of rough steep terrain and very little stockwater on the higher and steeper areas. Due to the terrain and location of stockwater, grazing is severe on the lower elevations and along the river. About 40 percent of the range area gets over grazed, and the balance is in good to excellent range condition.

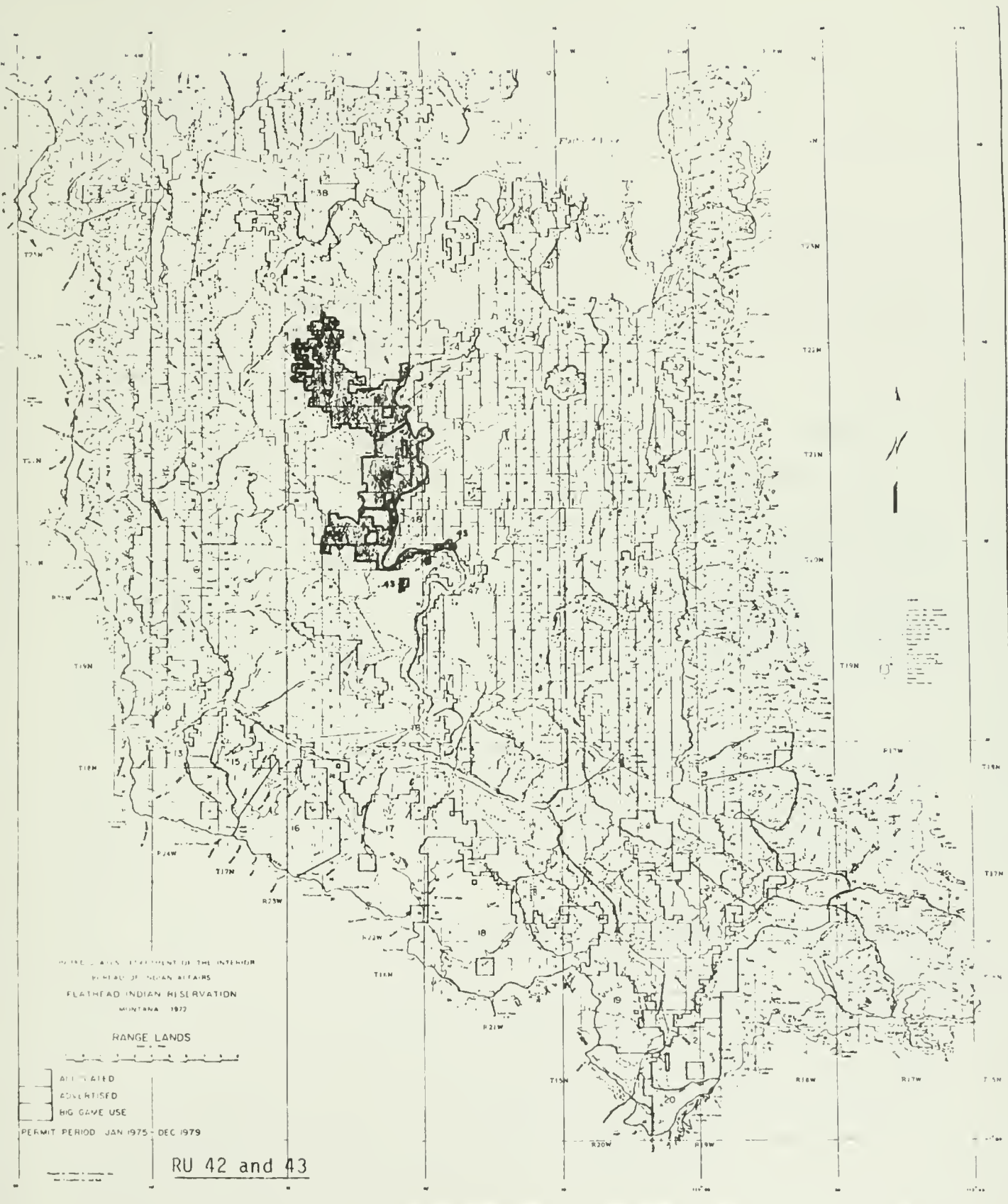
Both of these units will require considerable cross fencing and stockwater development. Most usable springs in the units have had little or no maintenance and need considerable repair. Salting by the permittees is done at the water which is a poor practice for getting good livestock distribution. Over the past years the turn out date has been May 1 which is too early for these units. The grass never gets a chance to reseed or build a good healthy root system. One solution to get better management in these units is to cross fence. The fence could run north and south and fence the lower range from the higher, steeper part. If cross fencing is used the river portion of the unit could be rested the early part of the grazing season. If fencing is done water will also have to be developed.

Another solution that would require no fencing would be to set the grazing season for fall and winter use. During the cool part of the year cattle would graze most of the steeper parts and also give the unit a rest

every year till the grass has matured. Another solution would be to cut the stocking rate to fit the grazing acres along the river. This would cut the stocking rate by one half.

There is nearly 100 acres of leafy spurge in the Garson Gulch area and spotty infestations of goatweed. The only adequate control of these weeds at this time is spraying. This weed is very serious, threatening this and adjoining lands.

There is a range conservation plan prepared for these two units and is on file at the Range Office of the Bureau of Indian Affairs at Ronan.



RU 47

Acres: 2,753

Rent: \$1,106.60 Annually

Season of Use: October 15, to February 15

Capacity: 216 Head

Permittee: Post Creek Indian Stock Association

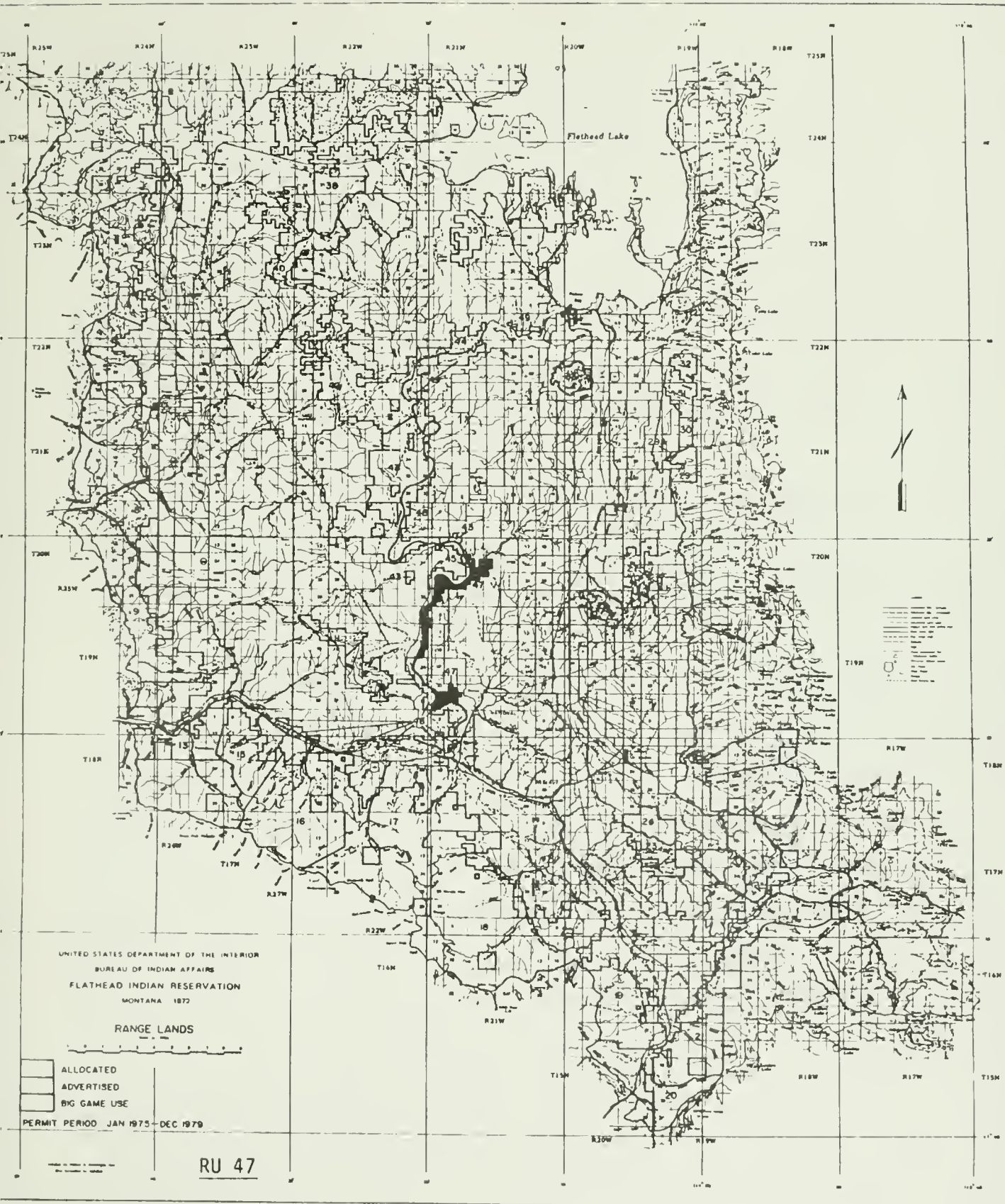
Range Unit 47 is located on the east side of the Flathead River in the Moiese area. This unit has an excellent possibility of developing irrigated cropland on about 500 acres. The water is available, and the soils show good possibilities for cropland.

Some of the area has been farmed in past years and not seeded back to grass with it resulting in many acres of weeds. The removing of the farm acres would not lower the carrying capacity of the unit to any degree. A sprinkler type irrigation system has been planned for this unit. Under irrigation and good management, we could expect four to five tons of hay per acre and an 80 bushel grain crop per acre. The cost of developing this land would be about \$200 per acre.

It is recommended that the farmable acres be removed from the range unit and advertised for a farm and pasture lease. This lease should be a ten-year improvement lease. The increased rental from this land could be as much as \$3,000 per year.

This irrigated land could be a good base for Indian operators wanting to get into an agricultural business. A plan for a sprinkler type irrigation system is on file in the Bureau of Indian Affairs Land Operations Office.

The remaining acres in the Range Unit should continue as a fall and winter grazing unit. There is no stockwater problem on this unit and the native grass is improving by using it as a winter unit.



RU 47

Range Unit 49

Acres: 3,039

Rent: \$937.50

Season of Use: Winter

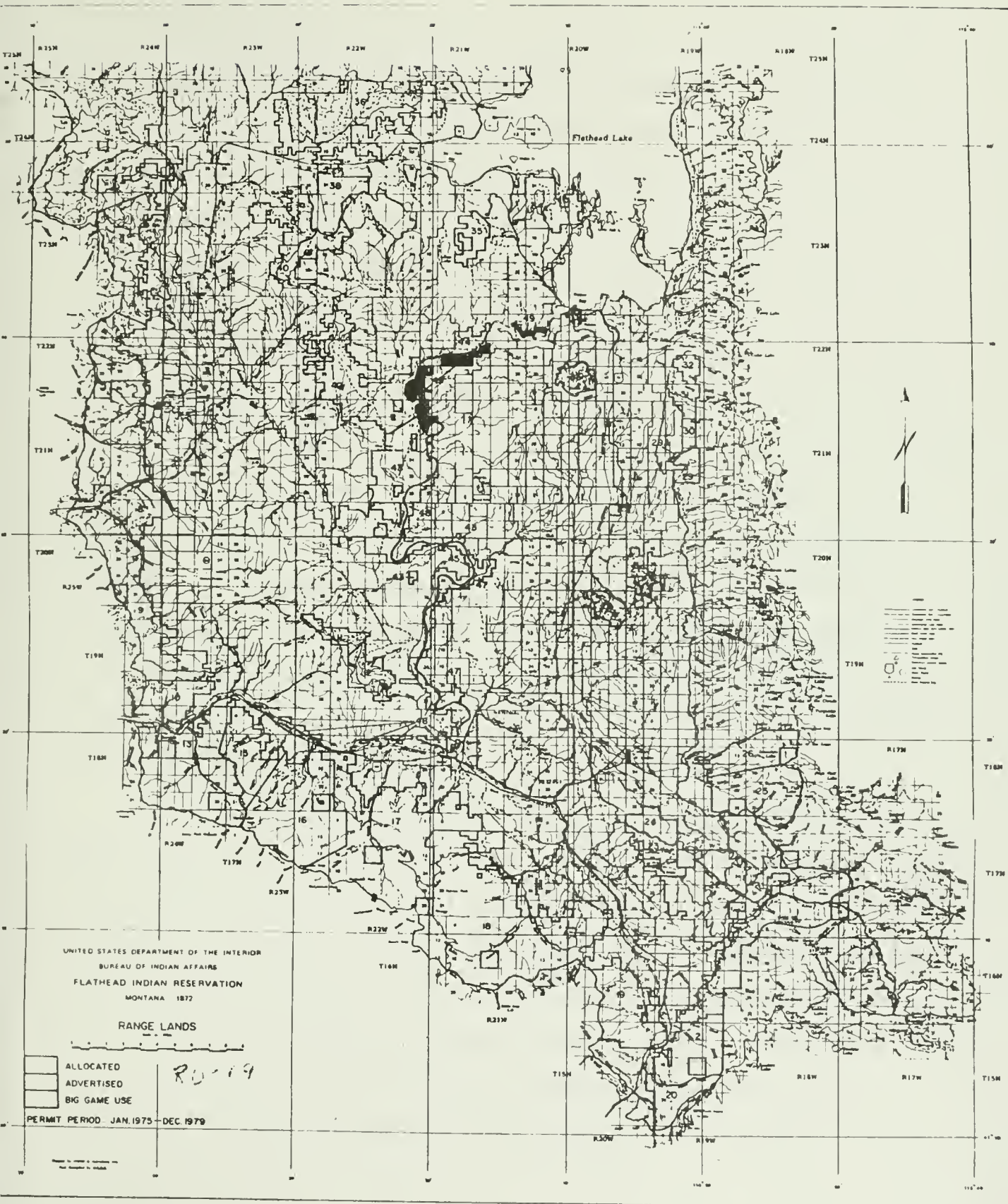
Permittee: Polson Indian Stock Association

Range Unit 49 is located on the south side of the Flathead River, north and south of Buffalo Bridge. This unit is being used as a winter unit and is a good example of what can be done to improve native range. Much of the unit is approaching excellent range condition due to the change in season of use. Native grass is getting a chance to mature, reseed and build up a good root system.

There is a need for better livestock distribution over the area. The area close to the river gets hard use while the area in the hills is not grazed. Salting away from the water would help the distribution of cattle.

During certain periods early in the irrigation season, much waste water runs through the unit. This water could be put to good use by installing treated wood structures, one in each drainage to divert the waste water into a series of contour ditches or dikes. This system would require very little labor or expense to place splash boards in the diversions or take them out as the needs arose. The additional water will greatly increase the amount of grazing in the water spreading area. A detailed map and structure design is available at the B.I.A. Range Office.

This unit could put up hay and provide winter grazing for many more cattle than are presently being grazed. There is also a good area for a sprinkler system to use the waste water that runs through the unit. This unit should continue as a winter unit until the irrigation is developed.



The Range Units 1, 2, 4, 5, 7, 8, 9, 10, 15, 17, 18, 19, 21, 22, 23, 24, 34, 35, 36, 38, 41, 44, 45, 46 and 48 are predominantly forested areas. The terrain is very rough and prevents good distribution of cattle. Water in most of these units is from intermittent streams and some spring developments. The forest canopy cover runs as high as 85 percent in some areas.

The principal land use of these areas is growing timber with grazing as a secondary use. The terrain is rugged with steep slopes. Sharp rock outcrops, bedrock and rockslides are common. Logging roads and skid roads, to some degree, improve the lower elevated woodland areas for grazing access by livestock. Periodic logging (such as is now in progress) favorably affects the grass production under the crown cover temporarily. Regrowth of younger trees and shrubs reverses this growth trend for grass gradually thereafter. The major problems as a livestock grazing unit is the use distribution to obtain use of the forage on wooded steep areas away from stream bottoms or springs, without overuse of fringe area roughlands. The grass or range areas of significant size have soils too stoney for conversion to new stands of vegetation through cultivated seedbeds.

Suggested solutions to some of these problems are to stock unit as much as possible with cattle familiar to the area. Develop additional springs where ever possible. Of primary importance is the continuation or increase of range riding to move cattle to less-used areas. Salt should always be at a distance from stockwater. Forage conditions of less densely wooded areas with moderately deep soils is generally good to excellent and merits the effort of distribution which has to be made continually to harvest the grass.

Turn out dates on these units should be no earlier than June 1 of each year.

Grass plants, like the animals that live on them, are living things. Like all living things, grass is most easily damaged in its early growth stages. This happens in the spring when the sun warms the soil enough to start the leaves and stems. How early this growth starts depends on the season and how much energy has been stored in the grassroots and crowns the summer before. The grass draws on this energy reserve to start growth in the spring. The leaves reach for the sun and manufacture food for the plant to grow, produce seed, replace the energy it has used to start growth and to store energy for the next spring.

If a grazing animal keeps these new spring leaves continuously clipped off year after year, the grass plant weakens and dies. Generally, its place is taken by some inferior plant that has a lower grazing value or may even be poisonous.

Grass plants need at least half of their yearly leaf and stem growth to keep themselves alive. The rest belongs to the cows, deer or elk or what ever there is there to eat it.

This is the reason to delay spring grazing until June 1 or to rotate the early use from pasture to pasture. A grass plant should have a chance to complete its growth cycle at least one year out of every five. More frequently is even better.

Weed Control

Over the past years Western Montana has been invaded by noxious weeds to an alarming degree. These weeds are invading cropland, forest areas and rangeland. The weeds that are most common are goatweed, spotted knapweed, leafy spurge, white top and dalmation toadflax. The Flathead Reservation has not been spared this invasion of weeds.

It is estimated that about 50,000 acres of the Reservation need intensive weed control. These weeds are competing with the native vegetation for moisture and nutrients and are a seed source for further weed infestations. We feel that the best way of gaining control of these weeds is by chemical weed spray. Small areas should be worked on each year with an intensified program on one area for a watershed. There must be a follow-up plan for each area that has been sprayed. The application of chemicals can be made by aircraft, 4 X 4 vehicles with booms and spot spraying with back pack sprayers or the combination of all types of sprayers.

The use of chemical weed spray must be done by licensed professionals who have the right equipment and the know-how to do a safe job and get the control that is desired. There is the possibility of removing 5,000 to 7,000 acres of farm and pasture land from range units and controlling the weeds with good farming practices and irrigation. Most of this land is along the Flathead River. The increased rental from this land could help in the cost of controlling the weeds on the range land. By removing some of this acreage we could also eliminate a seed source.

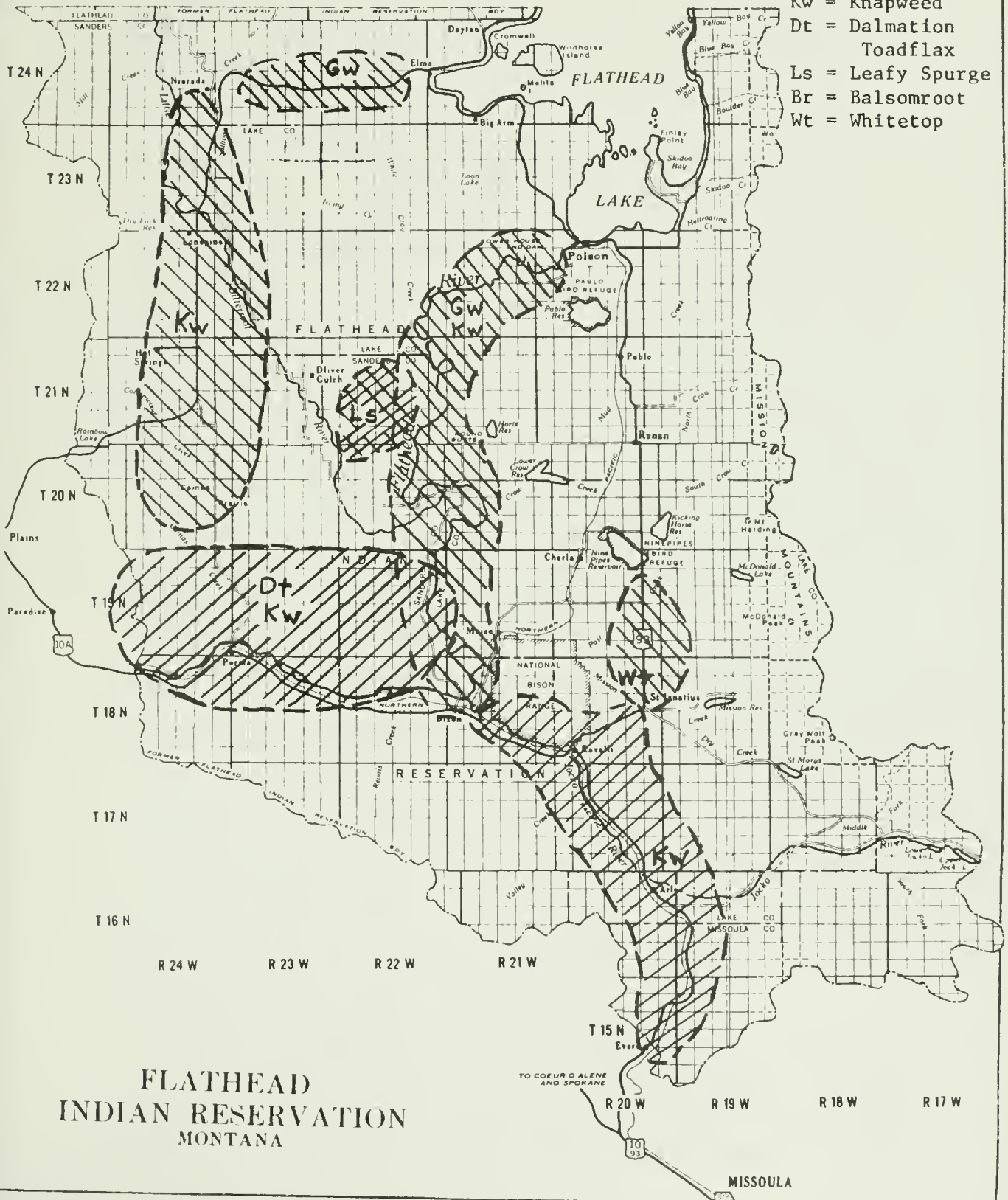
The cost of an effective weed control program is very high and could run as high as \$20.00 per acre. Weed control is a never-ending job and continuing effort. The prospects of biological control for weeds such as

the beetle for goatweed is being studied, and in a few years, might prove to be very effective. The use of chemical weed spray has many opinions as to its compatability with our environment. Used properly by experienced people it can be safe and do the job it was made for.

No weed control program will be effective if a good workable range conservation program is not being used. Good healthy native range plants can be more effective than many hours and dollars spent on a weed control program.

PROPERTY OF

VICINITY MAP

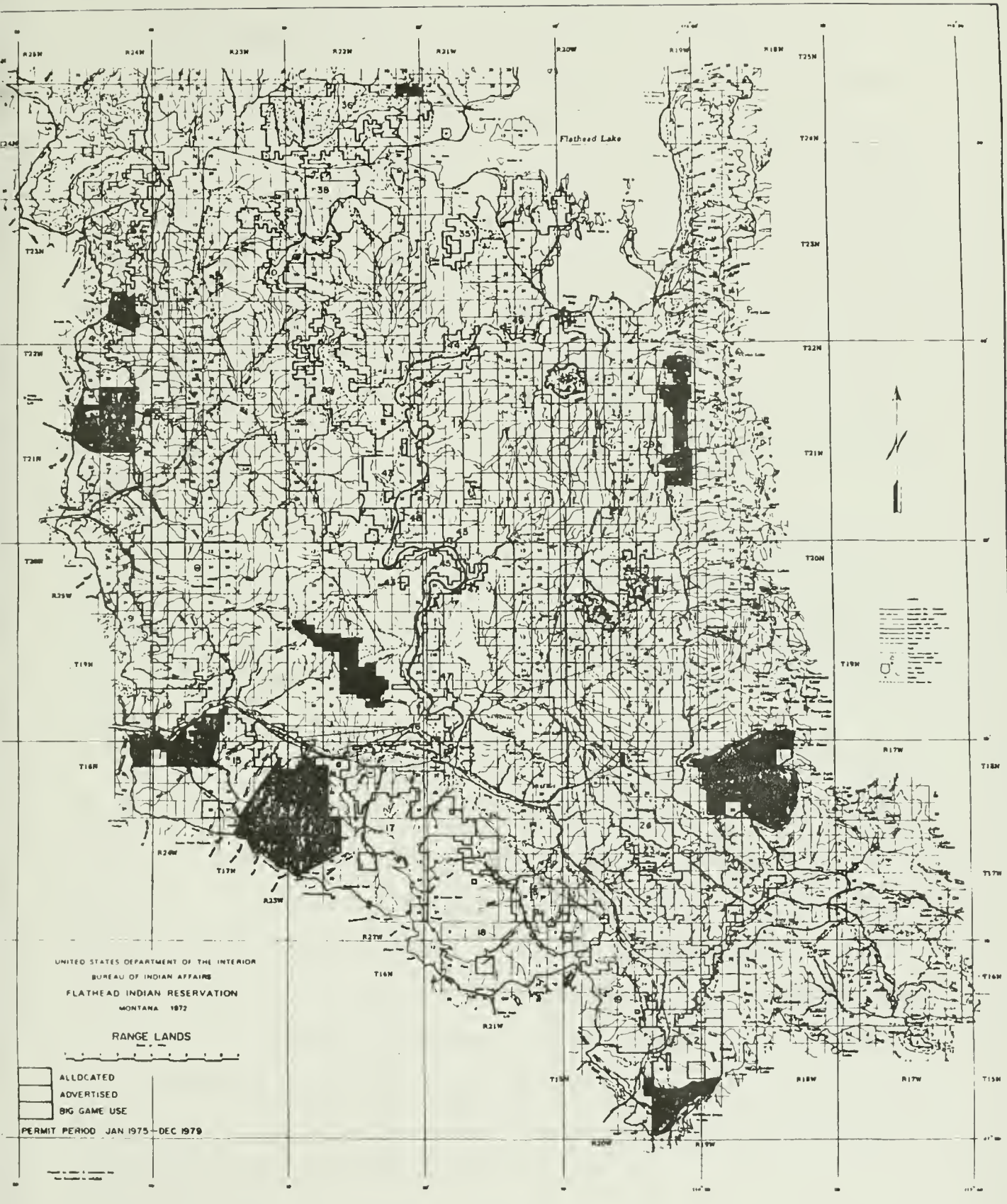


The following Range Units 3, 6, 11, 12, 13, 16, 20, 25, 26, 29, 30, 31, 32, and 37 are small units and are 80 percent timbered. It is felt that due to their location on the Reservation and the need for wildlife habitat and watershed protection these units should not be grazed. This is a total of 14 range units consisting of 50,122 approximate acres with a carrying capacity of 513 head of cattle. Of this 513 head, 135 head are Tribal members' cattle and the balance are non-Indian livestock.

The income to the Tribe from this 50,000 acres of grazing is \$5,336 per year. Our figures show that it takes 97.7 acres to summer a cow in this type of range. The Forestry Department has indicated in some areas of this range the cattle are competing with new seedlings and are eroding creek banks on some drainages. The units are all on known or suspected big game ranges. Elk and cattle do not associate with each other when they are able to occupy the same range. Cattle may deplete the grass and brouse resource for winter elk use. There is also potential competition between deer and cattle for chokecherry, willow and other brouse species.

Similar to big game animals, cattle relish annual growth of some shrubs, generally, those which are also palatable to deer and elk. Livestock use the range during the summer months, the period of active shrub growth. The reduction of annual growth by 50 percent during this season will be more detrimental than if browsed at a later date when the shrub is dormant. Many of the shrubs on primary livestock ranges are overutilized and are considered in decline. Even if livestock use were completely stopped for ten years or more, these particular shrubs would probably not respond and become productive again in this same period.

A solution to the loss of 135 head of Indian cattle grazing would be farm and pasture leases. The cattle would do better on tame or irrigated pastures and very possibly have a better percent of bred cows and larger calf weight at market time.



At the present time we have about 5,000 acres of potential farm land in the range units that are used for grazing. The income from these lands is about \$.50 per acre. These lands have the potential of leasing for \$7.00 to \$9.00 per acre and the ability of growing corn, grain, hay, and in some areas, potatoes. We can expect from \$200 to \$400 an acre of gross income with good management and sprinkler irrigation systems. The increased revenue to the Tribe could be substantial. For example, \$.50 per acre to \$7.00 per acre would be an increase on 5,000 acres of over \$30,000 per year. The cost of development of this land could run as high as \$200 per acre which would include irrigation systems, fencing, and weed control, plowing and reseeding.

These lands should come out of the range units and be advertised as ten-year development leases. This could provide for expansion of Indian operators farming and ranching businesses. Many of these land areas could provide more pasture and feed than the entire range unit from which the land had been removed.

Most of these lands are located along the Flathead River from Dixon to the Buffalo Bridge area. The areas to be developed are large enough to justify the costs of development. With the increased demand for agricultural products, the development of these lands could be quite rewarding. The improving of these lands is expensive and will take ten years to fully develop. Indian operators with the knowledge and good credit sources should be encouraged to expand their operation in this manner. The improvement of these lands could have the following benefits: 1) increased income to the Tribes, 2) expansion of Tribal members farm and ranch enterprises, and 3) weed control.

With intensified use of these lands the weed problem in these areas would be minimized.

Range conservation plans have been developed on the following units by the Soil Conservation Service. Range Units 6, 17, 42, 2, 38, 41, 47, 8, 9, 15, 7, 4, 45, 46, 27 and 49. We will continue to develop more plans until every unit has a conservation plan. These plans are available for any of the permittees and every effort will be made to work with the permittees to help them put the plans to work.

The information for this report was gathered over the past year from the Soil Conservation Service, the U.S. Fish and Wildlife Service, Tribal Wildlife Biologist, employees of the B.I.A., Indian stockmen and interested Indian Tribal members.

Summary

On many of the range areas on Flathead Indian Reservation we are finding the range in good to excellent range condition. These areas are rough and not accessible to grazing animals. Also, there is very little or no stockwater available. The areas we are concerned with in this report are the lowland areas where heavy cattle concentrations are and the range condition is fair and poor.

If we are to improve these areas of fair and poor ranges it will take considerable time, effort, outlay of money, and most of all dedication by the Bureau of Indian Affairs, the Confederated Salish and Kootenai Tribes, and the Indian stockmen that are using the range. The effort will have to be a three-way venture.

We are recommending changing our turn out dates on the range to June 1 of each year. This practice alone will give the more desirable range grasses a good start before they are grazed.

Proper distribution of cattle on the ranges is one of our big problems. This problem can be helped to a great degree by developing and maintaining spring developments, proper salting, and in some cases, fencing the pastures to promote a rotation system of grazing.

If the wildlife population on the Reservation is to grow we should be planning ahead to provide a habitat for them. It is recommended that we discontinue grazing of the marginal units to restore the watershed and promote wildlife on these areas.

Some of the lands along the river are not being used to their fullest potential as grazing. These lands should be removed from the range units and go into farm and pasture leases for increased production, more Tribal income, and a much increased land base for Indian operators.



SALTING FOR UNIFORM GRAZING

SALTING FOR UNIFORM GRAZING is skilful placement of salt to help distribute grazing evenly over the pasture while still meeting needs of animals for salt.

WHY CORRECT SALTING

- (a) Salting promotes health and growth and whets the appetite of grass-eating animals.
- (b) Livestock use forage that would otherwise be ungrazed.
- (c) It relieves concentration of livestock around watering places, in narrow valley bottoms, and near shade to some extent.
- (d) Healing of eroded areas at natural points of livestock concentration can be speeded.
- (e) Cattle prefer to go from salt to grazing and not from salt to water. Tests made where cattle could easily walk from salt to water in 20 minutes, showed an average of seven hours between taking salt and drinking.
- (f) Salting close to adequate forage improves gains because there is less trailing.

HOW TO DISTRIBUTE SALT

- (1) Pick lightly used areas rather than places fully grazed.
- (2) Avoid sandy or other erodible spots.
- (3) Pick places you can check when riding and livestock can reach from several directions.
- (4) Place salt near temporary water to get more use of such areas while water lasts.
- (5) Remove salt if area is getting more than full use.
- (6) Rough guides to amounts needed are:
 - (a) Sheep and goats - 3 to 4 pounds per year.
 - (b) Mature cattle - 20 to 25 pounds per year.
 - (c) Horses - 30 to 40 pounds per year.(Extreme weathering may increase these needs. Natural salt licks and salty forage may reduce needs. Extra salt may be needed where game animals are numerous.)
- (7) Rough guides to numbers of salting places needed are:
 - (a) On long season pasture in rolling country--one salting place for each 40 to 60 cattle.
 - (b) On short season pasture in rough country--one salting place for each 20 head.
 - (c) Not over $\frac{1}{2}$ to 1 mile apart on rough range and not over 2 miles on gently rolling.

Your local Soil Conservation Service technicians will be glad to discuss and help you fit this job to your own land, vegetation, and plan of operations.



CORRECT LOCATION OF STOCKWATER

CORRECT LOCATION OF STOCKWATER is getting enough water in the best possible locations for uniform grazing of the pasture.

WHY CORRECT LOCATION

- (a) Better gains because less trailing between water and good forage.
- (b) More of pasture with full use; less area deteriorating because of overuse while other parts go ungrazed.
- (c) Less gullyng of most productive land in draws, and healing of blowouts in sandhills, if too many livestock are now watering at one place.
- (d) Less silting of ponds, streams, and springs.
- (e) Less crowding and loss as in bog holes.
- (f) More healthful water and less danger from disease, if too many now using one stream, pond, or spring.

TO GET CORRECT LOCATION - CONSIDER:

- (1) Is there a good supply of forage to go with the new development?
- (2) Can livestock get to the water easily?
- (3) Could water be piped to good place for trough?
- (4) How far will livestock have to travel to grazing in different directions?
- (5) What condition is the range in? Does it need more grazing or less?
- (6) How might water location affect later cross-fencing?
- (7) How many animals should be grazed?
- (8) How subject are the soils near the site to erosion?
- (9) Will freezing temperatures cause trouble at the proposed watering place?
- (10) Will temporary water be adequate to use forage in vicinity, if permanent water is not possible?
- (11) What kinds of developments are possible where water is needed for an undergrazed area?
 - (a) Well
 - (b) Reservoir or dugout
 - (c) Spring or seep
 - (d) Pipe line
 - (e) Diversion from spring, stream, or irrigation system
 - (f) Hydraulic ram
 - (g) Constructed trail or fenced lane to nearby water
- (12) Can water supply be closed to livestock when area needs rest?

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Bozeman, Montana

RESTING NATIVE PASTURE FOR RANGE IMPROVEMENT

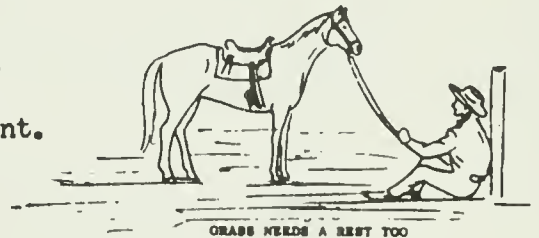
RESTING is keeping all livestock off a pasture during all or part of one growing season. This is also called "deferred grazing." "Rotational deferment" covers several years in order to give long rests to different pastures in successive years. In "Rotation grazing" the livestock are rotated from grazed to fresh pasture at short intervals and each pasture receives one or many short rests in one year. The last is usually applied only on tame pastures.

WHY REST A RANGE

- (a) Ranges are usually rested to improve poor and fair condition ranges to a higher condition and greater production.
- (b) It provides reserve feed for winter months and drought periods.
- (c) It allows the better grasses and other choice plants to:
 - 1. Make more and deeper roots.
 - 2. Grow longer leaves and taller seed stalks.
 - 3. Cover the ground so snow, rainwater, and soil won't be lost.
 - 4. Produce seed.
 - 5. Establish seedlings.
 - 6. Increase size of old plants by stooling, underground stems, or runners.
 - 7. Outgrow and crowd out inferior vegetation.
- (d) It is often cheaper and better than artificial reseeding.

HOW TO REST RANGES

- (1) Rest some of the better pastures first because they will improve the quickest and can then carry the load while the poor pastures are given the longer rests they require.
- (2) Rest a pasture during actual growing season of the kinds of plants you want to increase. Learn time of year they develop and mature seed, or how certain kinds can be made to spread by underground stems.
- (3) Remove all livestock from pasture to be rested. (A few left in pasture will graze areas and kinds of plants most in need of rest.)
- (4) To improve ranges in a low state of productivity may require resting for two or more consecutive growing seasons.
- (5) Do not overload pastures being grazed with stock from rested pastures.
- (6) Continue range improvement of rested pastures by proper stocking.
- (7) The kind of growing season determines:
 - a. Amount of rest needed.
 - b. Number of pastures that can be rested.
 - c. Rate of range improvement.



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FENCING FOR UNIFORM USE OF RANGE

PROPERLY LOCATED FENCING CAN PROVIDE:

- (a) Better distribution of grazing.
- (b) Easier handling of livestock.
- (c) Protection to run-down areas while they recover.
- (d) Protection while new seedings become established.
- (e) Control of straying and trespassing.
- (f) Seasonal protection from hazardous areas such as bogs or poisonous plants.
- (g) Segregation of kinds and classes of animals.
- (h) Greater livestock production.

HOW TO LOCATE FENCE FOR UNIFORM USE:

- (1) Make pastures with adequate size for each class you want to run separately. For example, yearlings.
- (2) Where possible put interior fences on boundaries between range sites.
 - a. If smooth country is fenced in with rough country--the smooth may get too much use before the rough gets enough.
 - b. If sands are fenced in with clays--the differences in the kinds of grasses they produce will make it hard to graze the whole pasture as you would like to see it grazed. For example, pasturage best for spring may be half in one pasture and half in another, if the fence crosses a major soil difference.
- (3) Keep tame pasture, such as crested wheatgrass and smooth brome, fenced separately from native pasture. (If tame and native are in the same pasture, the livestock will usually graze too much on the kind smallest in amount. The production from the kind needed most is then reduced even more.)
- (4) Where spotty or patchy grazing is serious it may be corrected by a cross fence dividing forage in half and then alternating all the livestock between the two halves while the other half grows up evenly.
- (5) Avoid long narrow pastures, especially those running north and south.
- (6) Avoid forming big pockets such as outfacing slopes in corners away from water.
- (7) Fence location can sometimes divide permanent water for use in two pastures. If not, the fence location should permit grazing in all directions from permanent water.
- (8) Break long mountain slopes to prevent too early use of high range.
- (9) Consider maintenance as well as ease of construction of fence in proposed location.
- (10) Base pasture size for herd on season needed and potential forage production, rather than on acres.
- (11) Use temporary fence to bring burned, eroded, reseeded, cleared, or run-down, areas back into full production.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PROPER STOCKING OF RANGE (Native Pasture)

PROPER STOCKING is balancing the number of stock you will run and the length of time they will graze with the needs of the better plants for growth and production.

WHY

- (a) It leaves a cover of forage and mulch that causes rapid intake and storage of water. (More water stored in the ground means more growth for grazing.)
- (b) All food for root growth is made in green shoots. (Deep roots mean use of deep moisture.)
- (c) It protects the soil from wind and water erosion. (A good forage cover is the surest and cheapest way to keep your soil on your place.)
- (d) Better plants increase and crowd out weeds. (Allows ranges in poor and fair condition to improve by changes to better kinds of plants.)
- (e) Food reserves are stored in the roots for quick and vigorous growth after droughts and in spring. (Weak plants are first to go dormant and last to green up.)
- (f) Makes most snow stop where it falls. (Snow that drifts and then melts in drainages and bushes is of little benefit.)
- (g) Prevents high soil temperatures in summer and frost heaving in winter. (Seedlings of valuable forage plants can become established.)
- (h) Provides more reserve for dry spells. (Reduces losses through forced sell-offs during droughts.)

HOW

- (1) Know what you now have by way of different kinds of range land and different kinds of forage plants.
- (2) Know what each kind of land could look like; the forage plants it could produce, the additional rainfall and snowmelt you could store, the erosion you could stop, and the increase in forage production that is possible, if any.
- (3) Stock according to your kind of range land and its range condition. Allow for improvement of ranges not in top condition. Your SCS technician can recommend a beginning stocking rate based on your range sites, their range condition now, and climate.
- (4) Adjust livestock numbers from season to season by watching degree of use. Graze about half and leave half the annual growth of important grasses on the pasture. See attached Guide to Degree of Use.
- (5) Move animals to other pasture, or market, or feed, before degree of use becomes close.

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U. S. DEPARTMENT OF AGRICULTURE
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GUIDE TO DEGREE OF USE

DEGREE OF USE	DESCRIPTION
Unused 0%	No livestock use.
Slight 0-20%	Practically undisturbed. Only choice areas and choice forage grazed.
Moderate 20-40%	Most of the accessible range shows grazing. Little or no use of poor forage. Little trailing to grazing.
Full (This or less use is Proper Use.) 40-50%	All fully accessible areas are grazed. Major sites have key forage species properly utilized. Overused areas less than 10% of pasture area.
Close 50-60%	All accessible range plainly shows use and major sections are closely cropped. Livestock forced to use much poor forage.
Severe 60-80%	Key forage species almost completely used. Low-value forage carrying grazing load. Trampling damage is widespread in accessible areas.
Extreme 80-100%	Range appears stripped of vegetation. Key forage species are weak from continual grazing of regrowth. Poor quality forage closely grazed.

1. Determine the degree of use at or near the end of the grazing period.
2. Proper use determination is based on key species on major sites, not total vegetation.
3. When properly grazed, the vegetation left will supply adequate cover for soil protection and will maintain or improve the quantity and quality of desirable vegetation.

Proper Use of Annual Growth Depends on SEASON OF USE:

Spring Use - (Moderate)
 Summer and Early Fall Use - (Full)
 Late Fall and Winter Use - Dormant Season (close)

Remarks:

SILTY SITE 15-19" PRECIPITATION BELT



Climate and soil do not change at fence lines. Differences in kinds of plants can be attributed to differences in past management of the range. Grasses on the right side of the fence make the best use of the moisture and soil to give maximum production. Heavy use on the left side of the fence has killed out these tall grasses. Soil compaction and lack of mulch have increased runoff. Range condition and production are poor.

Ranges can be restored to excellent condition by using the right combination of conservation measures. The intensity of treatment varies from the simple practice of proper use of the range to the complicated and expensive reseeding of the native grasses. Reseeding may be necessary to reestablish desirable native grasses that have been eliminated from the pasture. Reseeding may also be desirable to hasten recovery if seed plants of the better grasses are scarce. Resting the pasture until after seed-production of the better grasses may supply sufficient seed for natural reseeding.

All pictures on this sheet were taken on the same range site with less than $\frac{1}{4}$ mile between locations. The pictures illustrate range condition classes on this kind of land.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

MT-JS-29 (Range)

FOUR RANGE CONDITION CLASSES ON SAME KIND OF LAND IN FOOTHILLS AND MOUNTAINS OF
WESTERN MONTANA. (SILTY SITE 15-19" PRECIPITATION BELT)

Intensity of grazing use caused the differences in these native pastures. Soil and climate are the same. The taller grasses are the original natural cover of all the pastures. Nature will restore them if given a chance.

Excellent Range Condition

Tall grasses like Rough fescue, Green needlegrass and Bluebunch wheatgrass are abundant. A natural mulch covers the ground and lets moisture soak into the soil quickly. Grass stubble holds the snow. Runoff and erosion are at a minimum. Forage production is tops.

Good Range Condition

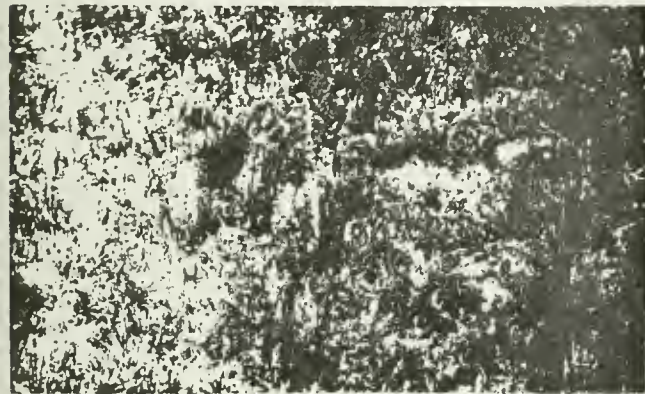
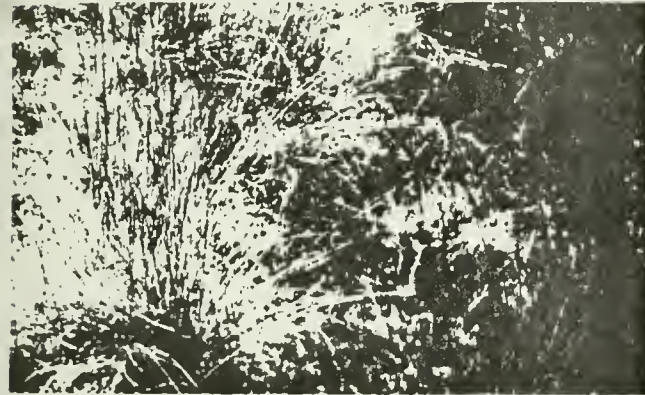
Rough fescue and Green needlegrass plants are scarce and Bluebunch wheatgrasses are small and weak. Prairie junegrass, Western wheatgrass and Sandberg bluegrass have partially replaced these high-producing grasses but bare ground is beginning to show. Loss of water and soil is evident. Proper use and an occasional rest during the growing season will rapidly improve this range.

Fair Range Condition

Only a few of the original tall-growing grasses are left. They have been replaced by short grasses like Sandberg bluegrass, Idaho fescue and Kentucky bluegrass and by weedy plants such as Wild iris, Hairy gold-aster and Pussytoes. Forage production is greatly reduced. Light use with frequent deferment of grazing during the spring and summer will usually restore ranges in this condition to their original productive state.

Poor Range Condition

Nature tries to keep the ground covered with some kind of vegetation. When use is so heavy that taller growing grasses can not survive, she substitutes unpalatable plants, annuals or short growing grasses that escape close grazing. Moisture for plant growth is reduced and forage production is at a minimum. Restoration to excellent will be slow but certain with the use of conservation practices.



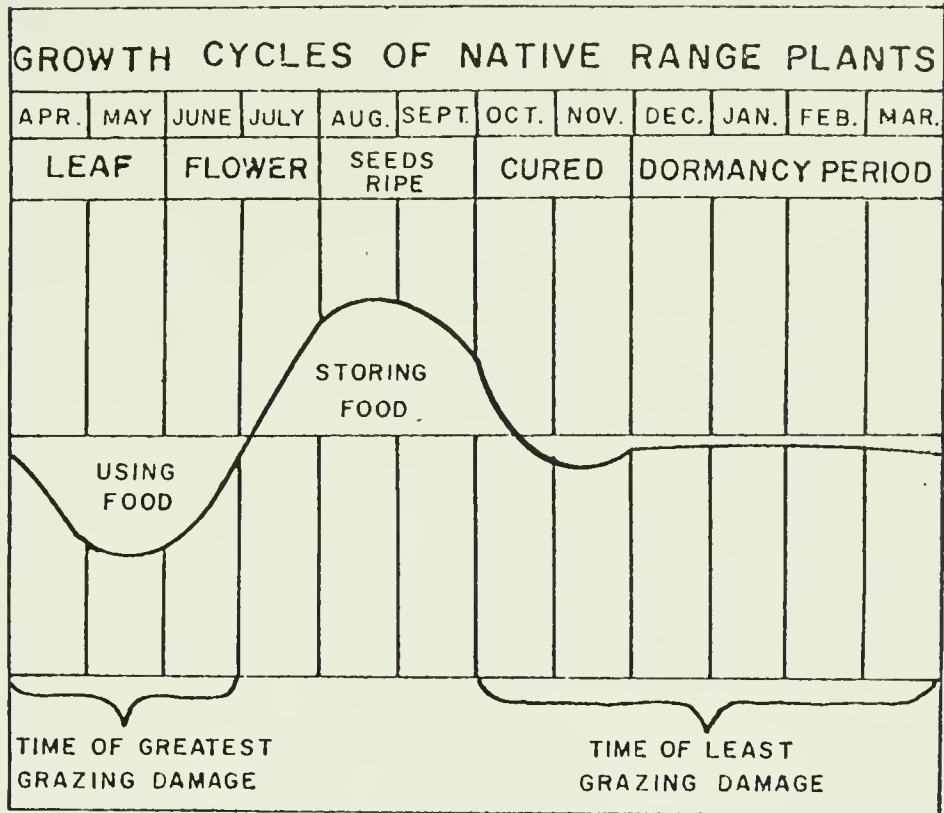


Figure 3. Annual cycles for storage and use of food reserve in relation to grazing season for perennial plants (from Alberta Dept. of Lands and Forests Pub. No. 146, 1970).

